to have a secondary procedure such as a secondary lens implantation.

There are less accurate methods of "estimating" cell density using an ophthalmic slit-lamp microscope. This technique uses a simple estimating comparator and does not require the counting of cells in photographs.

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Corneal Transplantation

CORNEAL TRANSPLANTATION is an accepted and highly successful therapeutic tool in ophthalmologic surgical procedures. Advanced microsurgical techniques, increased understanding of transplant immunology and the availability of topical corticosteroids have afforded the corneal allograft a degree of success unmatched by transplantation attempts with other tissues. Allograft rejection remains, nonetheless, a problem. Graft rejection attempts occur in about 20% of patients, though the percentage of grafts opacified from immune rejection is considerably smaller.

The mainstay of preventive immunosuppressive therapy has been topical and systemic corticosteroids. The success of these agents depends to a great extent on the vascularity of the recipient bed. The prognosis for graft survival remains only poor to fair in cases in which the host cornea is heavily vascularized.

Despite the success of topical corticosteroids in controlling the graft reaction, they can be associated with potential side effects including steroid-induced glaucoma, cataract, bacterial superinfection and herpetic recurrences. Therefore, alternative methods of immunosuppression have been evaluated. Most recently cyclosporine, a potent T-cell inhibitor that has revolutionized vital organ transplantation when administered either topically or as a retrobulbar injection in the laboratory, has shown promise as a useful immunosuppressive agent in clinical corneal grafting.

Human leukocyte antigen typing has been neither necessary nor practical in corneal transplantation primarily because of the avascularity of the cornea. Recent studies have indicated, however, that in selected heavily vascularized (high-risk) patients, human leukocyte antigen crossmatching or negative crossmatching of circulating lymphocytotoxic antibodies may improve the prognosis for graft survival.

In most cases, however, the prognosis for an optically clear graft is very good. Recipients can be educated in the cardinal danger signs of graft rejection (pain, redness, decreased vision) and, with early recognition and prompt and aggressive local immunosuppression, a clear corneal graft can be maintained.

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Intraocular Lenses for Correction of Aphakia

BEFORE intraocular lenses, the vision of the average postcataract operation patient was corrected with either thick, heavy spectacles or contact lenses. Although most patients can eventually adjust to cataract glasses, problems with depth perception, restriction of peripheral vision and image magnification often remain. Contact lenses eliminate most of these optical problems but require some degree of manual dexterity and a healthy cornea. Despite improvements such as daily-wear soft and extended-wear contact lenses, many patients still fail to achieve satisfactory comfort or visual correction. Intraocular lenses return an eye to an optical condition similar to that preceding the development of the cataract.

The early history of intraocular lens implantation was fraught with problems. Such complications as dislocation, corneal edema, persistent inflammation, secondary glaucoma and endophthalmitis were disturbingly common. Improvements in the finishing, polishing and sterilization of implant lenses and in the surgical techniques have greatly reduced these complications. The specter of serious, unpredictable long-term complications has not materialized although a few lens styles have been associated with late corneal decompensation.

In 1978 the Food and Drug Administration (FDA) classified all intraocular lenses as investigational devices. More than 1 million lens implantations have been monitored. Based on the data from the first 50,000 lenses, the FDA has approved several lens styles from a variety of manufacturers.

Presently, the posterior chamber lens styles are the most popular. Anterior chamber lens styles are also used frequently for both primary and secondary implantations. The use of iris-supported lenses has declined substantially.

In 1982 about 70% of the patients in whom cataract extraction was done in the United States received an intraocular lens implant. Lens implants may now be considered in any cataract patient who has an otherwise healthy eye. Implantation is especially indicated when a patient is not likely to tolerate a contact lens or an aphakic spectacle. An increasing number of patients are receiving "secondary" implants when trials with aphakic contact lenses or spectacles do not prove satisfactory.

Controversy still exists regarding the lower age limit for implantation. Contraindications have been diminishing as experience has improved. Caution is advised in patients with only one eye, severe myopia, uveitis, glaucoma, diabetic retinopathy, corneal endothelial dystrophy or other progressive ocular diseases. Although intraocular lens designs and surgical techniques are still evolving, the improvements accomplished over the past two decades have made lens implantation safe and effective for most cataract patients.

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